Medical Center Information Technologies
Evaluation of Knowledgebase Tool for MCIT Service Desk

Final Report

Submitted To: Nimi Subramanian
IT Manager
Medical Center Information Technology

James Gibney
Senior Business Systems Analyst
Medical Center Information Technology

Marianne Pilat
Lean Coach
Michigan Quality System

Christopher Kafantaris
Management Engineering Fellow
Michigan Quality System

Dr. Mark Van Oyen
Professor of Industrial and Operations Engineering
University of Michigan

Submitted By: IOE 481 Team 1
Program and Operations Analysis
Shuai Guan
Alexander Schelb
Grace Weng
Matthew White

Date Submitted: April 22, 2014
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Executive Summary

The Medical Center Information Technology (MCIT) Service Desk is a customer service call center for the University of Michigan Health System (UMHS) that addresses IT issues. When employees of UMHS run into technical issues, they call the MCIT Service Desk. In order to solve these issues, the Service Desk staff have several Knowledgebase tools that contain information relating to the various types of issues they may face and the steps to resolve the issues at hand. After observing the current state of the MCIT Service Desk and determining the key issues facing the department, the team has identified and developed conclusions, and has made recommendations to improve the Service Desk operations.

Background

The MCIT Service Desk currently runs a two Tier system. Tier 1 typically takes calls pertaining to general issues, such as a password reset or the configuration of a service such as Microsoft Outlook. Tier 2 primarily deals with calls pertaining to specific clinical systems in use at the University of Michigan Hospital (CareLink, CareWeb, MiChart). After 7 PM only Tier 2 is still operating. Between the hours of 7 PM and 7 AM, Tier 2 accepts calls typically routed to Tier 1, in addition to managing their normal call types.

When a customer calls the Service Desk, support staff members create a ticket for that call. The ticket includes information on who handles the call, the primary issue being reported, the resolved or unresolved status of the ticket, and a work log that tracks the states of the ticket since it was created.

How Service Desk staff resolve caller`s questions varies depending on the staff member. Service Desk staff reference at least seven Knowledgebase tools to resolve various caller questions. These include Confluence, SharePoint, OneNote, and a MiChart Reference Page. Less formal options are requesting support from a colleague who is not currently on a call, referencing past emails and tickets, and searching Google. If the Service Desk teams cannot resolve a call, the ticket is passed to a Service Provider team. This includes groups such as the Desktop Support Team, Identity Management Team, and the Service Management Teams that can handle more specific customer issues.

Service provided varies because Service Desk staff use different tools and processes to resolve calls. While the Service Desk currently meets their call volume and customer satisfaction is above the industry average, room for improvement and standardization of the problem solving process still exists.

The main goal of this project is to provide recommendations which will allow for simpler utilization of the Service Desk’s Knowledgebase tools in order to provide more consistent customer service. With a constant level of service, customers calling the Service Desk can expect to encounter higher first-round call resolution and fewer call handoffs between Service Provider teams.

Methods

The team performed five data collection methods to evaluate the current state of the MCIT Service Desk.
- **Observed within the MCIT Service Desk teams.** The team performed over 16 hours of observations between the two Tiers on how the Service Desk Staff currently uses Knowledgebase tools.

- **Interviewed personnel within the MCIT Department.** The team interviewed several key Service Desk Staff, Service Provider Team Staff and Managers, MCIT Directors, and Executive Directors throughout the course of the project to understand all Service Desk needs from different organizational levels.

- **Collected phone system data.** The Service Desk Analysis Team provided phone system data on the 33,403 calls received by Tier 1 and the 23,935 received by Tier 2 between October 1 and December 31 of 2013. The data regarding the types of phone calls received was used to further the current state analysis.

- **Conducted surveys of MCIT Service Desk Staff.** The team developed a survey that was completed by 20 out of the 25 Service Desk staff members to determine how and why staff use the Knowledgebase tools available to them.

- **Knowledgebase tool research.** The team researched 5 different Knowledgebase tools and developed a decision matrix with feature weights based on survey responses. Some of the tools are currently in use by the Service Desk, and some are not.

**Findings**

Observations with Tier 1 and Tier 2 of the MCIT Service Desk, and observation at MSIS provided information into the current state of the Service Desks. Observations showed MCIT Service Desk staff resolve calls differently, using different tools. MSIS observation allowed the team to draw parallels between the two and also introduced the team to Everyday Lean Ideas (ELIs) in practice.

Phone data showed that password resets and account lockouts combine for 9.3% of total calls, while information requests and user education combine for 9.04% of calls. Call volume also decreases as a typical week progresses, with Monday averaging 23.8% more calls than Friday in Tier 1 and 12.8% more in Tier 2. Weekends average 52% less calls per day compared to weekdays in Tier 2.

Survey results from the Service Desk staff show that 70% of the staff were trained through a shadowing process. Also, 75% of staff choose to use the same Knowledgebase tools as the staff member that they shadowed in training. Staff members only have a 60% confidence level that information they require to resolve a service call is located within the Knowledgebase tool they use.

The team was able to quantify through surveys that the staff would prefer to have one Knowledgebase tool, and the features that should be in such a tool. Regarding function, the ability to search key words is highly preferred. Staff desire search options for when they attempt to find documented solutions. Through interviews, staff regularly noted password or network requirements to access the tool, hyperlinks within articles, and the ability to add documents to articles as being important to the Knowledgebase tool function. Comparing each candidate tool through decision matrices regarding search, edit, and reporting features, it was determined that RightAnswers matched the majority of the staff members’ preferences.
Conclusions
Having one Knowledgebase tool in particular that is utilized, instead of the wide variety currently in use, would make the updating and maintenance of said tool much easier. With MSIS and MCIT Service Desks using different tools for ticket handling, one common Knowledgebase tool will assist them to handle calls consistently. Focusing on one tool would allow for each staff member to be confident that the information they need to resolve a customer’s issue is easily accessible, and that they can provide a consistent level of service to each caller.

The majority of the training for new staff members is done by shadowing an existing staff member, which allows for important information to potentially be missed. As most staff members use varying methods to resolve customer questions, a standardized training process could effectively ensure that all staff members have the same level of understanding regarding the use of each Knowledgebase tool.

Due to the fact that approximately 18% of calls the Service Desk staff encounter relate to problems that are quickly and easily remedied, a large portion of time could be freed up if these issues did not require Service Desk staff to resolve. With a self-service option on the Service Desk website, customers could deal with these issues themselves, giving the Service Desk staff time to focus on updating and maintaining their Knowledgebase tools. This would also allow time for weekly staff meetings regarding new issues that may have not been dealt with before.

Recommendations
Based on these Findings and Conclusions, the team recommends the following:

- **Use RightAnswers as the central Knowledgebase tool.** Provide staff with single tool to encourage staff to use the same processes for resolving issues which will promote consistent service to end users.

- **Standardized training process.** Define and implement MLearning training modules and internal training for proper use of the Knowledgebase tools for new staff prior to shadowing process. Annual refresher modules for current staff to maintain best practices when using Knowledgebase tool.

- **Standardized information communication process.** Weekly meetings between all Service Desk staff and daily meeting during shift changes will ensure information is updated and all staff members are current on the state of the Service Desk. Information regarding new problems confirmed with the corresponding Service Provider to ensure information being stored in the Knowledgebase is accurate and up to date. Implement Everyday Lean Ideas (ELIs) board to document and track issue resolutions.

- **Future Projects.** An IOE 481 project evaluating and defining standard collaboration between the MCIT Service Desk and Service Providers is recommended for a future semester, in order to reduce the workload of the Service Providers in addition to assisting MCIT and MSIS Service Desk staffs in their problem solving process.
Introduction
The Medical Center Information Technology (MCIT) Service Desk is a customer service center for the University of Michigan Health System (UMHS) that deals with IT issues. When employees of UMHS run into technical issues, they call the MCIT Service Desk to help resolve their problem. These problems can include anything from a forgotten password to more complicated problems, such as hardware issues. In order to solve these issues, the Service Desk staff consult several Knowledgebase tools. These tools are databases that relate to various IT issues. Knowledgebase tools contain documented steps to correct these issues, and other relevant information. Currently, the Service Desk staff utilize several different Knowledgebase tools, each containing a different level of information, which allows for varying strategies used when answering a call. The IT Manager asked IOE 481 1 Team from the University of Michigan to study the current state of the MCIT Service Desk and make recommendations to improve its current use of the Knowledgebase tools. From observations and analysis, the team has developed recommend changes to the MCIT Department to allow for standardized work processes and consistent service.

The purpose of this report is to provide a background on the MCIT Service Desk, present the key issues facing the department, describe the methodology utilized by the team to identify and develop conclusions, as well as presenting the team’s recommendations to the department. This report will also describe the expected impact of these recommendations on the MCIT Service Desk.

Background
In order to understand the key issues facing the Service Desk and its staff, a more detailed description of the Service Desk itself must be presented. When a customer calls the Service Desk, support staff members create what is referred to as a ticket for that call. The ticket includes all the information of each call, which includes, but is not limited to, who handles the call, the primary issue being reported, if the call is completed or still needs to be resolved, and a work log that tracks what has been done with the ticket since it was created. The Service Desk currently operates on a two Tier basis, each with specific call types to be resolved. Figure 1 outlines the current process map for the MCIT Service Desk.
Due to the variety of methods Service Desk staff use to resolve customer issues, the level of service provided is variable. While the Service Desk currently meets their call volume and customers are generally satisfied with their results, room for improvement and standardization of the problem solving process still exists.

**Service Desk Tiers**
Tier 1 operates from 7 am to 7 pm, Monday through Friday, and typically takes calls pertaining to more general issues, such as a password reset or the configuration of a service such as Microsoft Outlook. Tier 2 operates 24 hours a day, 7 days a week, and primarily deals with calls pertaining to specific clinical systems in use at the University of Michigan Hospital (CareLink, CareWeb, MiChart). After hours, however, Tier 2 will accept calls typically routed to Tier 1, in addition to managing their normal calls.

If Tiers 1 or 2 cannot resolve a call, it may be passed along to a Service Provider team. This includes groups such as the Desktop Support Team, which will go to the caller’s location and physically deal with the issue, if it cannot be resolved over the phone. Other Service Provider teams also include the Identity Management Team, the Service Desk Analysis Team, and Service Management teams.

**Key Issues**
Currently, the Service Desk staff are able to effectively handle the volume of calls they receive; however, as the Client reported, the manner in which staff members are resolving the questions of callers is a main concern. Presently, Service Desk staff reference at least seven sources of information to resolve various caller questions. These include, but are not limited to:

- Confluence
- SharePoint

![Figure 1: Process Map](image-url)
Other, less standardized methods include:

- Requesting support from a colleague who is not currently on a call
- Referencing past emails and tickets
- Utilizing Google’s search function

The following key issues as reported by the Client are driving the need for this project:

- Process:
  - Different staff members use different Knowledgebase tools to answer questions
  - Knowledgebase tools are infrequently updated
  - Tier 1 and Tier 2 are not physically located near each other
  - There is no standard communication flow between staff members

- Constraints
  - The physical locations of Tier 1 and Tier 2 are set; location merging will not be considered
  - Call volume throughout the day should be maintained

**Goals and Objectives**

In order to study the current state of the MCIT Service Desk and make effective and accurate recommendations to improve its current Knowledgebase tools and associated processes, the team has performed the following tasks:

- Observation and study of the general process of answering service calls
- Distribution and analysis of a survey for Service Desk staff
- Root cause analysis to identify the current areas for improvement within the MCIT Service Desk

With this information, the team has developed recommendations to:

- Standardize the process of completing a service call
- Standardize a singular Knowledgebase tool used by Service Desk staff
- Standardize the training process for both current and new staff members
- Develop a new process for updating the MCIT Knowledgebase tools
- Increase Service Desk staff and caller satisfaction

**Scope**

This project focuses on working with Tier 1 and Tier 2 Service Desk staff to understand the current state of how they resolve service calls. This includes the process they follow to resolve a call, how they use the Knowledgebase tools available to them, and how they work with colleagues to communicate information. The final deliverables include the designs for completing a service call and Knowledgebase tools that will help establish a more consistent process and information flow.

Anything not directly related to the Service Desk staff, their individual performance measures, and the merging of the two Tier locations is considered outside of the scope of this project. While the MSIS is not directly in scope of the project, the team saw value in benchmarking with them to draw parallels between MCIT and MSIS Service Desks.
**Methods**
In order to gain a better understanding of how the MCIT Service Desk functions, the team conducted observations, received and analyzed a phone system data pull, performed interviews, conducted and analyzed a survey, and then researched potential Knowledgebase tools that would fulfill the Service Desk staff needs.

**Observation**
The team has completed 16 hours of observation on Service Desk Tiers 1 and 2. The team has also completed 6 hours of observation on the MSIS Service Desk, in order to draw parallels between the MCIT and MSIS work processes and inspire future project considerations. Observations held at MSIS are considered outside the scope of the project, but were used to see how service calls are resolved from a different point of view.

**Phone Data Pull**
The team requested phone system data from the MCIT Service Desk Analysis team. This data was received on February 15, 2014, and includes:
- Average time to answer a call in the queue
- Total number of calls that entered the queue
- Number of abandoned phone calls
- Number of calls routed to a different support group
- Top 10 most frequent issues resolved by the Service Desk

The data received has been analyzed to determine what type of call Service Desk staff most frequently fields. In this way, the team has ascertained the peak calling time and subject, as well as defined procedures for short questions.

**Interviews**
Throughout the timeline of the project, the team met with and interviewed various members of the MCIT staff from various departments. These groups included executives and managers, as well as Service Desk staff. The information gathered during these interviews has allowed the team to compile a list of features that various groups would like to see in the final Knowledgebase recommendation.

The team also interviewed various Service Providers, such as the Desktop Support and Identity Management teams. Even though Service Providers are not a direct part of the MCIT Service Desk, they are the teams that solve more complex problems passed along from the Service Desk.

**Survey**
As this project is heavily based on the Knowledgebase tools the staff use, the team created a survey asking the Service Desk staff questions on each of the Knowledgebase tools to better determine which is the most suitable Knowledgebase tool for each staff member’s specific needs. The input of the IT Manager and Team Coordinators helped to design the questions in order to design a survey that captures quantitative and qualitative information on how the Service Desk staff performs their work. By analyzing the survey responses, the team gained a greater insight for making recommendations regarding work process and training standardization, along with an
appropriate recommendation for a common Knowledgebase tool. This survey also allowed the staff members to voice their opinions on potential changes, along with improving their work satisfaction. In turn, this will allow customers calling the Service Desk to have a more satisfying experience. 21 out of the 25 staff members completed the survey.

Knowledgebase Tool Research
Once the survey data was analyzed to determine the most important features staff desire in a Knowledgebase tool, the team researched 5 different tools in order to make a recommendation on what tool the staff should adopt. The tools researched were Atlassian Confluence, Microsoft OneNote, Microsoft SharePoint, BMC Remedy Knowledge Management, and RightAnswers tools. All research was collected using each company’s resources for the most recent version of the software. Sources were the company websites, tool’s user guides and datasheets.

Findings
Observations
The IOE 481 team 1 conducted 16 hours of observations in Tier 1 and Tier 2. Currently, call volume is considered by staff and managers as not being an issue. The Service Desk staff are currently able to answer and resolve the incoming calls they receive.

Each staff member resolve customer calls in their own way. Observed practices to resolve a call were using the One-Note and Confluence tools, using multiple internet reference page tabs opened on a desktop, and using a personal system of old emails and documents in Outlook.

Many staff members in both Tiers had stated that there is limited Knowledgebase tool training programs. Training for the position is a shadowing process. The first week of shadowing, the new staff watch as an experience staff member resolve incoming calls. The second week of training is the new staff taking calls with the experienced member watching them.

Updating the content within Knowledgebase tools was different amongst Service Desk staff. The general practice was noting what was needing change and making a personal note of it. This ranged from making a mental note to a sticky-note placed on their desktop. There was minimal observable communication regarding changes being made within the tools.

Observation held at MSIS showed they are using a single Knowledgebase tool, the University of Michigan Medical School (UMMS) Confluence. They also utilize an Everyday Lean Ideas (ELIs) wall where they document issues they seen, the steps that have been taken towards a resolution, and a final documentation of the issue’s solution.

Interviews
The IOE 481 team 1 conducted 8 interviews with Service Desk staff, managers, and directors within the MCIT department. These interviews help to understand the department’s experience and expectation on the MCIT Service Desk.

Interviews with MCIT Managers and Directors gave further insight into functions the Knowledgebase tool should contain from a managerial standpoint. The Identity Management team deals with the integration of Knowledgebase tools from a security point of view, noting that
it is important a Knowledgebase tool should not be completely accessible to the general public if it contains sensitive information.

MCIT has begun some self-service options for end users to resolve issues themselves rather than call into the Service Desk. Interviews revealed there is interest amongst the Managers and Directors to further this practice, and was further supported when interviewing Service Provider team members. This self-service should act as a way to train the end users instead of relying on Service Desk staff.

The Identity Management team also suggested an information validation process with Service Providers before publishing articles on the Knowledgebase tools. The Service Provider team confirmed that Service Desk update the articles on their Knowledgebase tool themselves. This makes for content within the tool to not always be the best solution. The team also suggested having a verification process with them to ensure content is correct and the best practice to resolve a call. This would also involve increased communication between the MCIT Service Desk and the Service Provider teams.

**Phone Data Pull**
The phone data from each Tier revealed the call volume for each workday, which will be used to better understand how the Service Desk staff are spending the majority of their time throughout the week:

![Tier 1 Calls Handled Distribution](image)

**Figure 2**
Collected: October 1 – December 31, 2013
Sample Size: 33,403 calls
Retrieved: February 15, 2014
As we can see from Figure 2, call volume at Tier 1 is not evenly distributed throughout the week, and Monday is the staff’s busiest day. The call volume decreases very significantly when approaching Friday, Friday has 23% less than Monday. Call volume in Tier 2 decreases 12.8% from Monday to Friday, and handles only 48% as many calls on average during the weekend compared to weekdays.

Because the call volume per day is so high, it is important to see which calls are the most common, both by class and by it, so the team can determine what type of calls can be resolved using self-service methods instead of having Service Desk staff resolve them over the phone:
Many of the top categories are the questions that require minimal time from staff members, such as password resets and information requests. These are issues that require very little user information to acquire, mainly a UMID and email address, and could be solved by the users themselves via a self-service webpage.

The team discovered that almost 20% of the total calls the Service Desk team receive are related to ID management and requests for instruction manuals, which are the type of questions that could be resolved using a self-service option on the MCIT webpage.

Survey
The demographic of the results from the survey showed that of the staff that responded, 30% were from Tier 1 and 70% from Tier 2. Also, 70% of the staff members have worked at their positions for less than 3 years.

A large portion of the survey was to determine which of the available tools the Service Desk use most frequently, and how and why the staff use these tools. The team asked Service Desk staff which tools are currently being used and developed an index rating to rank which tools are used most frequently with the higher the index denotes the tools being used more frequently:
The survey results in Figure 4 show Confluence, Outlook, and the MiChart Reference page are the top 3 most frequently used tools currently available to the MCIT Service Desk staff. It was then found that 80% of the staff members reported that they learned about the Knowledgebase tool they use through the shadowing process during their training. The team then asked which features the Service Desk staff saw as most important when using these tools and used the same index as before to determine the most preferred features:

\[
Feature \ preference \ index = \sum_{i=1}^{8} [(9 - \text{ranking#}) \times \text{(# of responses)}]
\]
Sample Size: 20 Staff Members
Retrieved: March 15, 2014

Feature preference index = \sum_{i=1}^{8} (9 - \text{ranking}#) \cdot \text{(num of responses)}

From Figure 5 we can see that the most preferable features the Service Desk desire are keyword and title search, quick search, and results shown in order of relevancy.

Knowledgebase Tool Research
The most important Knowledgebase tool features were determined using the survey results. An “X” denotes that the tool does contain that feature. Features are categorized into three groups:
- **Search features** are the options a user has when searching for a solution to a call problem
- **Editing features** are the options available when creating a new page or article within the Knowledgebase tool
- **Reporting features** are the reportable metrics collected by the tool

These features in each tool are displayed below in Tables 1, 2 and 3 for search features, editing features, and reporting features respectively.

<table>
<thead>
<tr>
<th>Search Features</th>
<th>Confluence</th>
<th>SharePoint</th>
<th>OneNote</th>
<th>Remedy</th>
<th>RightAnswers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keywords</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Titles</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Quick search</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Results by Relevancy</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Summaries</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Searchable attachments</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Search with filters</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Natural Language Search</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 1. Search Features Checklist

<table>
<thead>
<tr>
<th>Edit Features</th>
<th>Confluence</th>
<th>SharePoint</th>
<th>OneNote</th>
<th>Remedy</th>
<th>RightAnswers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperlinks</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Spell check</td>
<td>X*</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Image and multimedia</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Robust formatting</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tables</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 2. Editing Features Checklist
Table 3. Reporting Features Checklist

<table>
<thead>
<tr>
<th>Reporting Features</th>
<th>Confluence</th>
<th>SharePoint</th>
<th>OneNote</th>
<th>Remedy</th>
<th>RightAnswers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search phrase reporting</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Article usefulness rating</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Printer friendly</td>
<td>X*</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Article hit tracking</td>
<td>Plug-in</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

It should be noted that within Confluence there is the option for adding third-party plug-ins that allow for the tool to be customized. This is seen here in the article hit tracking feature, specifically, as it is not a standard option, but there are plug-ins that allow for it. The asterisk, “*”, seen in Confluence’s options denotes that these features are not built into the tool, however they can be utilized if that feature is available in the internet browser used by the staff.

Remedy and RightAnswers also have some additional features the team deemed important for Service Desk staff based on interviews with the Directors and Managers within MCIT. These features are as follows:

Additional Features within RightAnswers and Remedy Knowledgebase tools

The following additional features are deemed important through interviews with various managers and built into the most recent version of RightAnswers and BMC’s Remedy Knowledgebase tools:

- **Security**: Administrators of the tools can integrate authentication tools to limit viewing and editing abilities of users by group or on an individual basis.
- **Training**: RightAnswers and Remedy both offer course modules on using the tool, including navigating the tool, searching for articles, creating new articles, and managing existing articles. These courses include quizzes at the end of each module and an end exam.
- **Verification**: When creating a new article, it is marked as “unpublished” in RightAnswers or “unofficial” in Remedy until verified, with a notification of its creation sent to the corresponding team for content approval.
- **Self-service**: The tools have a build in self-service option that allows for pages to be created for end users. These pages can contain general solutions and process trees to walk end users through a solution, step by step. They also have a virtual agent that end users can interact with to resolve their issues.
- **Updating**: RightAnswers offers an email request function and usefulness reporting function to allow both Service Desk staff and end users to draw attention to information currently lacking in the tool. Remedy contains a reporting metric that collects search phrases that yield no usable solution. This also draws attention to issues that may not have a well-defined solution or require the creation of a new article.
- **Timestamp**: RightAnswers and Remedy both offer timestamp function, which show the latest updated time.
- **Advanced Search**: RightAnswers offers advanced search functions that allows end users to narrow and filter search results until their specific solution can be found.
• Knowledge Explorer: RightAnswers contains a built-in feature that scans current Knowledgebase content and transfers said information into the tool, allowing for ease of implementation.

Conclusions
Minimal Knowledgebase tool training, a lack of standard communication procedures, and operational inconsistency has been shown to be the cause for multiple Knowledgebase tools used at the MCIT service desk. This was determined from root cause analysis based on phone data pull, interviews, observation, and surveys.

Operation Variability
Service Desks staff were observed resolving tickets first from prior experience when they can. If they don’t know the answer to the problem they would either reach to their colleagues for assistant or search in their preferred Knowledgebase tools for answers. Observations, interviews, and the survey results all show that there are too many Knowledgebase tools being used by Service Desk staff, so the tools they are accessing are all different and could contain different resolutions to the same issues. As a result, staff are using different processes to resolve calls, making for inconsistent service.

Knowledgebase Tool
Survey results confirm the observations that the Service Desk staff mainly use Confluence, Outlook, MiChart Reference page, and OneNote Knowledgebase tools. Confluence, OneNote, and SharePoint are tools that contain many of the features desired by Service Desk Staff. However, Remedy Knowledge Management tool and RightAnswers contain every main survey derived feature, the additional features discussed in interviews, are designed for use by Service Desk staff, and are industry leaders in the field. As a result, Remedy and RightAnswers are the top two candidates for recommendation.

Training Program
The survey results showing 70% of Service Desk staff have work within MCIT less than 3 years, which suggests a high turnover rate. This means new employees are hired often, and that there is a need for a thorough training program to ensure the new staff are prepared to work within the Service Desk. 70% of the survey responses stated that there was no formal Knowledgebase training prior to the job and the majority were introduced to Knowledgebase tools during their two-week-long shadowing period. Self-service for end users to allow them to resolve issues and train themselves is the resolution processes could be further utilized by MCIT Service Desk teams. Interest in such a field was shown from the Service Desk staff, Service Providers, MCIT Managers, and MCIT Directors.

Standard Communication & Operating Procedures
Observations and Interviews with MCIT Managers, MCIT Directors, and the Service Provider team members suggests there is a lack of standard communication processes amongst the MCIT Service Desk staff and with Service Providers. A verification process for new content added to Knowledgebase tools is needed and deemed important by the involved teams.
Recommendations
To address the root causes for inconsistency in MCIT Service Desk operations, the team proposes the standardization of the Knowledgebase tool to be used, the staff training process, and information communication.

Standardized Knowledgebase Tool
Remedy and RightAnswers both contain all the basic features the Service Desk deemed most important in the Survey results regarding searching, editing, and reporting. RightAnswers also contains additional features requested in the interviews with MCIT Directors and Managers regarding security, content verification, article timestamps, and updating options. Based on this, and its Knowledge Explorer function, it is the recommended single, Knowledgebase tool.

Standardized Training Program
The team proposes a standard training program for using the Knowledgebase tools and ticketing system before the shadowing process, using MLearning modules. The team believes that such a program would be helpful to ensure every staff has the same level of knowledge on their everyday-use tools. In addition, to reduce call handoffs, a standardized training process for new staff, an end user training program, and a self-help website on information allocations could have impact on reducing call handoffs.

Standardized Communication Procedures
The team recommends a standard information communication between Service Desk staff in both Tiers, and Service Providers. A short debrief meeting between shifts and weekly meeting between Tiers would allow for information communication between groups. Communication between Tiers and Service Providers ensure information is updated and validated in Knowledgebase tools.

The MCIT Service Desk should adopt an Everyday Lean Ideas (ELIs) system similar to that currently used by the MSIS Service Desk team. This system will visually display problems being faced by MCIT, what has been done to resolve these problems, and, if the problem has been resolved, the solution to these problems. These problems can be needed updates, things restricting the ability of the Service Desk to resolve calls, and any other problems that, when solved, would make the jobs of Service Desk staff easier. An example of such a system and its various steps towards resolution can be found under the Appendix.

Self-Service
MCIT Service Desk should provide self-service and instructional pages to their customers through their website. This self-service home page would include options such as Frequently Asked Questions (FAQs) with links to their solution, a Resources section that contains links to information that is commonly requested like the MiChart reference page, and a search function to find information not found on the homepage.

Expected Impact
Using RightAnswers as the Single Standardized Knowledgebase Tool
The implementation of RightAnswers as the staff’s single Knowledgebase tool would allow all Service Desk staff to have access to the same information, which will result in resolving calls the
same way regardless of which Service Desk staff member receives the call. Using the single tool would also make for new information documentation to remain consistent. Any new information would go solely into RightAnswers and be accessible by all staff, which should improve on the 62% confidence level that the information they are using is accurate and available. This would have a compounding effect that ends in a more consistent end product to the customers.

**Standardized Training Program for Knowledgebase Tool Use**
Providing Service Desk staff with a standard training process for using the Knowledgebase tool available to them will allow for new staff to adapt to their position and be able to resolve calls the same as staff members with more experience. New and old staff can feel confident that they will be able to find the information necessary to resolve incoming calls, which would make for further improvement in the confidence level regarding the information within the Knowledgebase. With staff members knowing how to navigate the same tool, explaining the location of information to another staff member will also become easier.

**Standardized Communication Procedures**
Creating better communication flow between the MCIT Service Desk staff, Tiers, and Service Provider teams will create an environment that facilitates improvement. By validating new information with Service Provider teams, Service Desk staff can be confident they are using the most up to date, and optimal, solution to resolve calls. Implementing a system using Everyday Lean Ideas (ELIs), like that being utilized at the MSIS Service Desk, will bring problems or holes in Knowledgebase information to the surface sooner to be resolved quicker, and keep the Knowledgebase updated.

**Future Project Considerations**
While conducting the evaluation of the MCIT Service Desk, the team came across other potential areas of improvement that proved outside this project’s scope, but could be explored by future teams.

**MCIT Service Desk and Service Provider Collaboration**
During observations, consistent communications between the Service Desk and the Service Providers appeared to be lacking. The Service Providers are specialized service teams that the MCIT department refers callers with more complicated problems. When the Service Desk is unable to resolve customer calls, the unresolved tickets are passed to Service Provider teams with a specific area of expertise.

One problem mentioned during observations was the number of tickets that are passed on to the wrong Service Provider teams. Noted by one MCIT Service Desk employee, at least one ticket goes “full circle” a day, meaning it is continuously passed through Service Provider teams until it finally comes back to the Service Desk unresolved. A process can be implemented that allows the Service Providers to maintain the Service Desk Knowledgebase tool with the correct and most up to date information. If this process can be implemented, it should increase the number of tickets resolved by the Service Desk team during the initial call, and in turn reducing the number of handoffs between the Service Desk and Service Provider teams. This will make the Service Desk job easier by having the best information available to them and the Service Providers job easier by lessening the number of tickets they receive and thus giving them more time to focus on more
pressing issues.

This project would involve determining the current state of communication between the Service Desk and Service Provider teams, observing both teams to understand where the two jobs overlap, exploring the possibility and feasibility of Service Provider teams taking the responsibility of maintaining the Service Desk Knowledgebase tool, and producing potential communication processes between the teams.

Medical School Information Services Service Desk
The Medical School Information Services (MSIS) Service Desk and the MCIT Service Desk are two separate entities within the University of Michigan Health System. The MSIS Service Desk provides IT support mainly to faculty and students within the medical school.

The MSIS Service Desk shares similar problems with the MCIT Service Desk, but the scope of this project did not allow for the team to expand past a short observation and interviews with managers within MSIS. Like MCIT, they need ways to remove stale information, provide self-service support to customers, and be able to quickly place new employees. With this project as a foundation and reference point, a future team could perform an evaluation of the work processes in MSIS and look to resolve the problems they face.

Further Analysis into Remedy Knowledge Management and RightAnswers Tools
The scope of this project did not allow for an in depth analysis of the Knowledgebase tools not currently being used by the MCIT Service Desk staff, RightAnswers and the latest version of the Remedy Knowledge Management tool. Within this project’s analysis, the team was only able to research features built into the latest software.

A future IOE 481 project team could do a more in depth analysis into the two software options, which could include a demo analysis and performing a cost analysis to make a more educated recommendation into which outside Knowledgebase tool could be used by the Service Desk.
Appendices

Appendix A – MCIT Monthly Service Summary

Received From: Service Desk Analysis Team
Retrieved: February 15, 2014

MCIT Service Desk
Industry: Health Care
All CSI Subscribers
Appendix B – Survey Data Analysis

Collected: March 4 – March 14, 2014
Sample Size: 20 Staff Members
Retrieved: March 15, 2014

What Service Desk Tier do you work for?

Survey Answers

![Pie chart showing Service Desk Tier 1 with 30% and Service Desk Tier 2 with 70%](image)

Figure A2
How long have you worked in your current position at the MCIT Service Desk?

![Employee Work Experience (Current Position) Distribution](image)

*Figure A3*

**Example Everyday Lean Idea Board**

**MCIT Service Desk Issues**

- **TO DO**: Problems that have been documented but no steps have been taken to work towards a solution.
- **IN PROGRESS**: Initial steps towards a solution have been taken. Solution may be in progress or additional support may be needed.
- **NEEDS MORE SUPPORT**: Steps have been taken towards a solution but additional support is needed in order to resolve completely.
- **RESOLUTION IN PROGRESS**: The necessary steps to resolve the issue have been taken and are in the process of being resolved.
- **RESOLVED**: The problem has been successfully resolved, with the solution documented.

*Figure A4*